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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,360	01/05/2004	Jin-Woo Park	062020-1380	2196
24504	7590	01/11/2006	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948			TUGBANG, ANTHONY D	
			ART UNIT	PAPER NUMBER
			3729	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/751,360

Applicant(s)

PARK ET AL.

Examiner

A. Dexter Tugbang

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 10-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The applicant(s) amendment filed on October 27, 2005 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Election/Restrictions***

3. Claims 10-25 continue to stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on May 9, 2005.

NOTE: Further clarification as to what group Claim 25 belongs is as follows. Claim 25 recites the feature of the support structure being formed of a ferromagnetic material. This feature is common to Claim 10 in the invention of Group II. Therefore, Claim 25 belongs in Group II and thereby remains directed to an invention non-elected with traverse. However, if at some point during prosecution, Claim 1 is found to be allowable, full consideration will be given as to rejoining Claim 25 with Claim 1, since Claim 1 links the invention of Claim 25 with the invention of dependent Claims 2-9.

***Claim Objections***

4. Claim 4 is objected to because of the following informalities. The phrase of “in a preferable manner” (lines 3-4) is awkwardly worded and should be removed.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. Claims 1, 4, 6 and 8 rejected under 35 U.S.C. 102(b) as being anticipated by Grimes et al 5,399,372.

Grimes discloses a method of manufacturing a magnetic inductor core comprising: depositing layers 24, 26 of ferromagnetic material and at least a first layer of sacrificial conductive material (metal release layer 20) such that a first stack of ferromagnetic layers (first stack on left in Fig. 4) spaced apart a first predetermined distance (by non-magnetic layers) is formed and a second stack of ferromagnetic layers (second stack from left in Fig. 4) spaced apart a second predetermined distance (by non-magnetic layers) is formed, the first stack being spaced apart from the second stack via islands 12; depositing a support structure (adhesive layer 32); and removing the sacrificial conductive material 20, thereby leaving the first stack and the second stack of ferromagnetic layers mechanically supported by the support structure (see Fig. 7).

Regarding Claim(s) 4, Grimes further teaches creating a core mold (islands 12) atop a substrate 10 where the core mold is shaped such that the deposited ferromagnetic and sacrificial conductive materials are formed.

Regarding Claim(s) 6, Grimes further teaches that the ferromagnetic material is permalloy (see col. 8, lines 19-24).

Art Unit: 3729

Regarding Claim(s) 8, the magnetic core device of Grimes inherently operates at a given operating frequency. The layers of ferromagnetic material of Grimes each have a thickness on an order that is equal to its own skin depth at the given operating frequency.

***Claim Rejections - 35 USC § 103***

6. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimes et al in view of Japanese Patent Publication JP 9-235493, referred to hereinafter as JP'493 and Croll 3,350,180.

Grimes teaches the claimed manufacturing method as relied upon in Claim 1 above, further including that the deposition of the ferromagnetic material and the sacrificial conductive material are performed in an alternating and repetitive manner. Grimes does not mention that the depositing steps recited in Claim 1 are each performed by electrodeposition.

However, the examiner takes Official Notice that depositing ferromagnetic material, sacrificial conductive material and support structure material via electrodeposition is conventional, old, and notoriously well known in the art of coating. For example, the examiner cites Croll to show that deposition of layers of ferromagnetic material and sacrificial conductive material, i.e. metals in general, by electrodeposition is conventional and well known (see col. 3, lines 56-66). JP'493 is cited to show that depositing of support structure materials, i.e. adhesive materials, by electrodeposition is also conventional and well known in the art (see Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Grimes by having each of the

Art Unit: 3729

deposition steps be performed by the conventional coating process of electrodeposition, as taught by Croll and JP'493, to provide an alternative means of depositing and provide an accurate means for patterning of the various materials.

7. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimes et al.

Grimes teaches the claimed manufacturing method as relied upon above in Claim 1, further including that the support structure is I-shaped (if Fig. 5 is rotated 90 degrees) and the sacrificial conductive material is a metal.

To use a support structure that is U-shaped and a sacrificial conductive material that is copper is a matter of engineering design choice since the applicant(s) have not disclosed that the claimed shape of the support structure and composition makeup of the sacrificial conductive material, solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the support structure shape and composition of the sacrificial conductive material taught by Grimes.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grimes et al in view of Japanese Patent Publication JP 5-258236, referred to hereinafter as JP'236.

Grimes teaches the claimed manufacturing method as relied upon above in Claim 1. Grimes does not mention that the removing step is performed by selective etching of the sacrificial conductive material.

JP'236 teaches that a sacrificial material (peeling layer 36) can be removed by selective etching to thereby release and leave a stacks of ferromagnetic material remaining (see Constitution).

Art Unit: 3729

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Grimes by removing the sacrificial conductive material via selective etching, as taught by JP'236, to provide an alternative means of removing the sacrificial conductive material, which would release and leave remaining the first and second stacks of ferromagnetic material.

### *Response to Arguments*

9. The applicant(s) arguments with respect to Claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

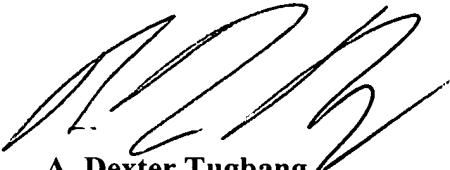
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 3729

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**A. Dexter Tugbang**  
**Primary Examiner**  
**Art Unit 3729**

January 5, 2005